



(11) EP 1 441 548 A3

(12)

## EUROPEAN PATENT APPLICATION

(88) Date of publication A3:  
19.08.2009 Bulletin 2009/34(51) Int Cl.:  
H04N 13/04 (2006.01)(43) Date of publication A2:  
28.07.2004 Bulletin 2004/31

(21) Application number: 04250329.2

(22) Date of filing: 22.01.2004

(84) Designated Contracting States:  
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR**  
**HU IE IT LI LU MC NL PT RO SE SI SK TR**  
 Designated Extension States:  
**AL LT LV MK**

(30) Priority: 24.01.2003 JP 2003016668

(71) Applicant: **Pioneer Corporation**  
Tokyo-to (JP)

(72) Inventors:  
 • Chuman, Takashi  
 c/o Pioneer Corporation  
 Tsurugashima-shi  
 Saitama-ken (JP)  
 • Uchida, Yoshihiko  
 c/o Pioneer Corporation  
 Tsurugashima-shi  
 Saitama-ken (JP)

- Satoh, Hideo  
 c/o Pioneer Corporation  
 Tsurugashima-shi  
 Saitama-ken (JP)
- Yoshizawa, Atsushi  
 c/o Pioneer Corporation  
 Tsurugashima-shi  
 Saitama-ken (JP)
- Hata, Takuya  
 c/o Pioneer Corporation  
 Tsurugashima-shi  
 Saitama-ken (JP)
- Yanagisawa, Shuuichi  
 c/o Pioneer Corporation  
 Tsurugashima-shi  
 Saitama-ken (JP)

(74) Representative: **Townsend, Victoria Jayne et al**  
**Fry Heath & Spence LLP**  
**The Gables**  
**Massetts Road**  
**Horley,**  
**Surrey RH6 7DQ (GB)**

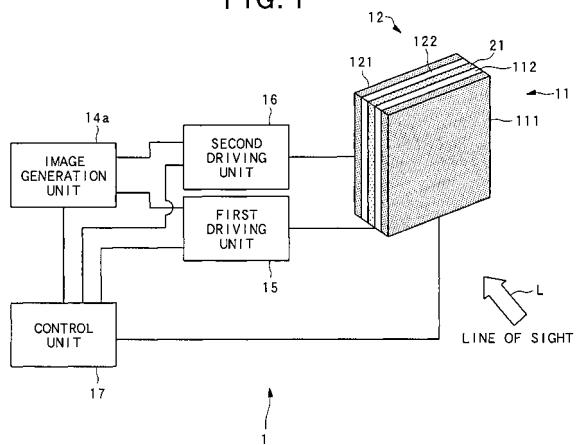
## (54) Apparatus for displaying three-dimensional image

(57) An apparatus for displaying a three-dimensional image of an object to be displayed, through a superimposing of a plurality of images of the object, which are placed so as to be apart from each other on a line of sight of an observer, comprises: a first luminescent display unit; a second luminescent display unit; and a bonding member. The first display unit has a first screen. The second display unit is disposed so as to face the first display unit. The second display unit has the second screen, which is light-transmissible. The bonding member connects the first display unit and the second display unit with each other. The bonding member has a light transmission property and is a bonding agent with which a space between the first display unit and the second display unit is filled.

The refractive indexes of the different layers composing the display units and the bonding member are predetermined so as to reduce the reflection of light emitted from

a rear display unit on the subsequent layers.

FIG. 1





## EUROPEAN SEARCH REPORT

Application Number  
EP 04 25 0329

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (IPC)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
Y	US 2002/105516 A1 (TRACY THOMAS M [US]) 8 August 2002 (2002-08-08)	1-8, 10-13	INV. H04N13/04
A	* abstract; figures 1-3 * * paragraphs [0002], [0008], [0009], [0032], [0037] *	9	
X	US 5 113 272 A (REAMEY ROBERT H [US]) 12 May 1992 (1992-05-12)	1	
Y	* abstract; figures 4a,5,6 *	1-8, 10-13	
	* column 5, line 65 - column 7, line 19 *		
X	US 2002/113753 A1 (SULLIVAN ALAN [US] ET AL) 22 August 2002 (2002-08-22)	1	
Y	* abstract; figures 1,2,7-10 *	1-8, 10-13	
	* paragraphs [0036], [0038], [0039], [0041], [0072] *		
A	US 5 986 401 A (THOMPSON MARK E [US] ET AL) 16 November 1999 (1999-11-16) * column 2, lines 23-32 *	2,7	TECHNICAL FIELDS SEARCHED (IPC)
A	WO 00/29779 A (UNIV CALIFORNIA [US]; YANG YANG [US]; CHANG SHUN CHI [US]) 25 May 2000 (2000-05-25) * abstract; figure 1 * * page 7, line 1 * * page 4, lines 20-25 *	2,7	H04N G02B
A	JP 2000 100559 A (MATSUSHITA ELECTRIC IND CO LTD) 7 April 2000 (2000-04-07) * abstract; figure 1 *	2,7	
The present search report has been drawn up for all claims			
2	Place of search The Hague	Date of completion of the search 6 July 2009	Examiner Mao, Pauline
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			
T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document			

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 04 25 0329

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

06-07-2009

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 2002105516	A1	08-08-2002		NONE		
US 5113272	A	12-05-1992		AT 122157 T CA 2075807 A1 DE 69109471 D1 DE 69109471 T2 EP 0515533 A1 JP 5504210 T WO 9112554 A1		15-05-1995 13-08-1991 08-06-1995 01-02-1996 02-12-1992 01-07-1993 22-08-1991
US 2002113753	A1	22-08-2002		NONE		
US 5986401	A	16-11-1999		NONE		
WO 0029779	A	25-05-2000		AU 1524600 A		05-06-2000
JP 2000100559	A	07-04-2000		NONE		